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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,005

08/10/2006

Garry Robert Nunn

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466 7590 11/24/2009

YOUNG & THOMPSON
209 Madison Street
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Alexandria, VA 22314

EXAMINER

PATEL, SMITA S

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

11/24/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

Office Action Summary	Application No. 10/589,005	Applicant(s) NUNN, GARRY ROBERT	
	Examiner SMITA PATEL	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-47 is/are pending in the application.
- 4a) Of the above claim(s) 36-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the communication filed on August 10, 2006.
2. New Claims 28-47 are pending and Claims 1-27 are cancelled by the applicant.

Election/Restrictions

- Applicant's election with traverse of Group I, Claims 28-35, in the reply filed on 07/16/2009 is acknowledged. The traversal is on the ground(s) that to reconsider withdrawing Claim 36-47 based on national stage application lacking unity of invention under Rule 475. However, this is not found persuasive because there is no requirement in PCT 13.1 and 13.2 of a burden in searching the entire claims to establish a prima facie case of a lack of unity. In addition, because each group differ in scope and contain features not found in any other group, the examiner would have to formulate separate search strategies for each group. Each of these separate search strategies would require searches in separate classes and subclasses as well as use of keywords unique to each strategy. The examiner respectfully submits that such searches would impose a serious burden of time on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

- Claims 36-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected Groups II- VII, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 07/16/2009.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 28-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Corner (European patent No.: 0301857 A2, cited IDS reference) in view of Stephens et al (US Patent No.: 6,375,735 B1).

As per Claims 28-30 and 32, Corner teaches the biogenic silica is obtained by the controlled burning of biogenic materials containing silica, such as rice hulls, rice stalks, esquitum (horsetail weed), bagasse, certain bamboo palm leaves, particularly palmyra, pollen and the like (considered incinerating a silica bearing organic source). The burning of biogenic material is done under controlled conditions so that at least some amount of crystalline silica can be present. Biogenic silica such as rice hull ash is dissolved in strong alkali solution effective to provide a solution of soluble silica such as sodium or potassium silicate at above ambient temperature (considered preheated to temperature up to about 65° C) or atmospheric pressure or both. The strong alkali solution should have a pH of about 12 or greater and can be pure sodium hydroxide (considered hydroxides of sodium). Experiments were conducted at room temperature, 100° F, 212° F, 275° F (overlapping heating temperature range of 100-300° C)

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containing rice hull ash in sodium hydroxide. Rice hull ash in sodium hydroxide to form solution of sodium silicate which were titrated for total alkali and total solids from which the silica was computed (Col.4 lines 3-50 and Col.5 lines 10-11). Corner does not expressively mention incinerating a silica bearing organic source at temperature range from about 700-1200 C.

However, Stephens teaches incinerating of rice hulls, furnaces have been designed to operate at extremely high temperatures without regards to the form of silica produced by this incineration. The phase diagram of silicon dioxide indicates that a transition from amorphous to crystalline forms known as tridymite and cristobalite takes place at temperatures above 2000° F(1093° C) when the silica is in pure state. However, the incineration of biogenic material such as rice hulls at temperature of 1800-2000° F range for any prolonged exposure period lead to the formation of crystalline silica because the transition temperature from amorphous to crystalline is reduced by the presence of other components of the original rice hulls (Col.7 lines 25-45).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the method of Corner to include the step of incinerating a silica bearing organic source such as rice hull at temperature of 1800-2000 F to transition from amorphous to crystalline form taught by Stephens to have potential useful fuel value and are used as low grade fuel to produce steam and electricity in the number of locations, especially near rice milling and sugarcane processing operations taught by Stephens.

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As per Claim 31, Stephens teaches silica bearing organic source constitute of 15-28% by weight of, sodium concentrations in range of 4-9.5% by weight and water concentration being in range of 55-81% by weight (overlapping claimed range, Col.13 lines 65-68 and Col.14 lines 1-3).

As per Claim 33, Stephen nor Corner does not expressively mention silica bearing organic source is proportion of about 320g of incinerated rice hulls to the alkaline solution of about 160g of an hydroxide or hydroxides and 3 liters of water but Stephen teaches wide range of amount used for incinerated biogenic organic source, water and alkali solution as described in Claim 31, it would have been obvious to optimize to select the claimed amount based on preference or other requirement to have potential useful fuel value and are used as low grade fuel to produce steam and electricity in the number of locations, especially near rice milling and sugarcane processing operations taught by Stephens (MPEP 2144.05 [R-5]). Corner mention varying the proportions of biogenic silica to strong alkali solutions and higher ratios can be obtainable as well and the solid concentration can be controlled by water addition up the point where the solution becomes viscous (Col.7 lines 1-9) so it would have been obvious to optimize to select the claimed amount based on preference or other requirement with low cost equipment and low energy as taught by Corner.

As per Claims 34-35, Corner teaches rice hulls are continuously added to the top of the furnace and the ash is continuously removed from the bottom but does not expressively mention pressure release valve arranged for releasing excessive pressure within the vessel but it would have been obvious that the pressure release valve arranged for

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releasing excessive pressure within the vessel when utilizing high pressure at high temperatures which provides the use of less energy intensive process as taught by Corner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SMITA PATEL whose telephone number is (571)270-5837. The examiner can normally be reached on Monday-Thursday, 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SP, AU1793

11/17/2009

/Melvin Curtis Mayes/

Supervisory Patent Examiner, Art Unit 1793